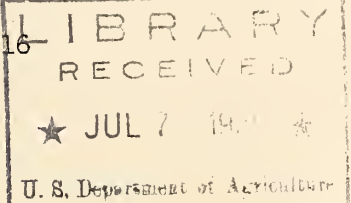


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Tuesday, June 17, 1930

A series of radio talks by W. R. M. Wharton, chief, eastern district, Food, Drug and Insecticide Administration, U. S. Department of Agriculture, delivered Tuesday mornings at 10 a.m. Eastern Standard Time through WJZ, New York and the following other stations associated with the National Broadcasting Company: KWK, St. Louis; WREN, Kansas City, KFAB, Lincoln; WRC, Washington; WBZA, Boston; KSTP, St. Paul; WSM, Nashville; WAPI, Birmingham, WJAX, Jacksonville; WPTF, Raleigh; WRVA, Richmond.

Well my friends, this is the sixteenth talk by your Government representative on safeguarding your food and drug supply and on reading food and drug labels. You know I am telling you stories of my personal experiences in enforcing the Federal Food and Drugs Act, which protects your foods and drugs and I am telling you how to read labels so that you may protect yourself. Did you hear my talk on vitamins on May 27? The information in that talk should be available to every housewife in the Nation. You may have a copy of it for the asking and likewise you may have copies of all read-the-label information broadcast to date.

Today, I propose to tell you what is and what always has been, and probably what always will be the most common, the most prevalent and the cheapest adulterant of foods, and my read-the-label subject will be baking powders.

I know you are waiting to hear what the adulterant is, which is the most common, the most prevalent, the most frequently used adulterant of foods. It is a product which may be had for nothing. It is available at every manufacturer's fingertips. It is water. Water has been used at one time or another to adulterate practically all of our liquid and semi-liquid foods, and it has been used to adulterate most of the solid foods. It is by far the most prevalent adulterant which has ever been employed to adulterate, to cheapen foods, and to debase and lower the quality and strength of foods.

Of the products which have been extensively adulterated with water, milk is the most important. I do not think there can be any question but that milk has been more often adulterated with water than any other food product and, as you know, milk is perhaps our most important food -- it is the food on which we depend in feeding our babies and children. My friends, greed has been the motivating force, avariciousness has been the cause, and these human weaknesses, all too prevalent I regret to say in human nature, have been exercised at the expense of the children of the nation. Your city and State health authorities especially have been very active in late years to prevent the adulteration of milk with water, and this form of adulteration is now well under control.

I want to relate an experience of your present speaker of some years ago when we were investigating the character of the milk supply of a large city.

This city was receiving and using about 128,000 quarts of milk per day during the summer months, and fully three-quarters of this milk moved in interstate commerce. We were determining whether the interstate shipments of this milk were adulterated, and we found it to be a fact that large numbers of the shipments being made to this city were actually adulterated with water. We

went out into the milk producing sections supplying this city trade. In one locality, for example, we found that a certain milk shipping station, before our arrival for investigation, had been shipping daily 380 ten-gallon cans of milk. Immediately after we began the investigation the amount of the shipment from the same number of producers fell off to 320 ten-gallon cans per day. In other words, 60 cans, or 600 gallons, of water were squeezed out of this one shipping station's output.

We tested also the milk just as it came from the cows of a large number of milk producing farmers and we found that the average butter fat content of the milk from cows tested - and we believed them to be representative of the entire milk supply -- ran somewhere in the neighborhood of 3.8 per cent. But when we tested the output of the city dairies we found that the average butter fat content was something like 3 1/2 per cent. or below.

When we visited the farmers and actually detected some of them in the adulteration of their milk by the addition of pump water, we were given many amusing explanations. In one instance, I remember, I was told that if there was water in the ten-gallon cans of milk it must have leaked into the can while it was sitting in a tub of water used to cool it. It was not explained how water could leak into a can when the milk did not leak out of the can. Again, in another case, it was admitted that a member of the family running short of cream for breakfast had gone out to the milk can ready for shipment and had removed the cream, and in order to fill up the deficiency had pumped water into the can. Other excuses were that the hired man must have poured in the water.

This work in the locality I have in mind resulted in a large number of prosecutions and produced very beneficial results in raising the standard of the quality of the milk supply of that city.

Now, about reading baking powder labels. You should read baking powder labels, and I am going to tell you how.

Baking powder is the leavening agent produced by the mixing of an acid reacting material with bicarbonate of soda, and it is made with or without starch or flour. When baking powder is used in the kitchen in a batter or dough, the acid material in the baking powder reacts chemically on the bicarbonate of soda ingredient and thus ^{carbon} dioxide gas is released. The gas permeates the dough or mix and causes thousands of gas bubbles to form and expand the elastic ingredient of the flour called gluten and the gluten prevents the escape of the gas. The heat of baking expands the gas bubbles and the product simultaneously loses moisture and becomes rigid while being supported by the gas. This gives a fluffy and light baked product.

Baking powders are required to yield not less than 12 per cent of available carbon dioxide gas. Available means practically obtainable under kitchen baking conditions.

In the long ago, yeast was used almost exclusively in baking, and when baking powders came into use, they were often called yeast powders and this continued for a long time. Baking powders contain no yeast and hence the term yeast powder is a misnomer and is seldom used.

Baking powders serve many of the purposes for baking use that yeast serves. The production of the gas in the case of baking powders occurs much

more quickly than results from the use of yeast. This is because in the first instance you get carbon dioxid gas by chemical reaction which immediately releases it, whereas in the case of yeast, this gas is produced slowly and gradually by fermentation.

There are four kinds of baking powders commonly found on the market today, their classifications depending upon their acid ingredients. These kinds are:

- 1 Tartrate baking powders, the acid materials of which are:
 - (a) Potassium acid tartrate or cream of tartar.
 - (b) Tartaric acid
 - (c) or combinations of these.
- 2 Phosphate baking powders, the acid ingredient of which is
 - (a) Calcium acid phosphate
 - (b) Sodium acid pyro phosphate
- 3 The so-called alum baking powders, the acid ingredient of which is sodic aluminic sulphate or soda alum. Real alum which is potassium aluminum sulphate is not used in baking powder.
- 4 Baking powders with acid ingredients composed of combinations of some of the foregoing.

In addition to the acid reacting materials and bicarbonate of soda, baking powders are made some times with corn starch or flour. These fillers are used to standardize the strength of the baking powder and they serve to keep the products dry and to prevent loss of strength on standing by holding the chemical reacting material apart.

Some baking powders contain small quantities of egg albumen or dried white of eggs. The amounts of egg albumen used usually is about 15/100's of one per cent, and the amount is too small to be of appreciable leavening or nutritive value. This material is added for the purpose of making the baking powder appear to evolve large amounts of gas when tested by the so-called cold-water test. In the case of baking powders with egg albumen in them, this test yields a more or less permanent foam due to the egg albumens holding the gas evolved.

In all baking powders the chemical agent from which the gas is obtained is bicarbonate of soda and no other carbonate is permitted to replace this.

Do you know Mrs. Housewife when you make soda biscuits with bicarbonate of soda and sour milk you are putting together materials which react together in the same way that the mixed baking powder materials react. The lactic acid in the sour milk reacts with the bicarbonate of soda and releases the carbon dioxid gas, which serves the same leavening purposes as the gas from baking powder. Now let me give you my specific read-the-label information. First read the label to determine how much baking powder you are getting. You will find packages containing one pound, and you will find packages containing less than this amount. Second, read the label to determine the ingredients in the baking powder. You should decide what kind of baking powder you like best and want to use and then check your purchases by reading

reading the label. If you prefer a tartrate baking powder, you should look on the label for the ingredients tartaric acid or cream potassium bitartrate, or cream of tartar. If you prefer a phosphate baking powder, you should look on the label for the ingredients calcium or sodium acid phosphate, or mono sodium phosphate, or the abbreviation of these terms which is "phosphate". If you prefer a so-called alum baking powder, you should look on the label for sodium aluminum sulphate, or sodic aluminic sulphate or soda alum, all of which mean the same thing. If you prefer a product consisting of a combination of these ingredients, check the label the same way to determine if you are getting what you wish. You will find egg albumen or dried white of egg declared on labels. Sometimes the statement occurs on labels to the effect that the dried white of egg in the baking powder furnishes a means of estimating the amounts of available gas and is not a substitute for eggs in cooking. However declared, you should remember that egg albumen content of baking powders does not add any particular value to the product for leavening purposes. Now the Federal standards require all baking powders to yield not less than 12 per cent of available carbon dioxid gas. This means that under kitchen conditions the product will yield 12 per cent of carbon dioxid gas. Therefore, all baking powders must contain at least 12 per cent of available gas, but some baking powders may run as high as even 15 or 20 per cent of available carbon dioxid gas, otherwise called CO_2 . Some labels declare the amounts of available carbon dioxid gas. Therefore, look for this declaration. If you don't find it you should assume that there is 12 per cent at least present. If you do find the declaration, the declaration should be true and this should guide you in your purchases, and then again, you can get some idea of the strength of the baking powder by reading the directions. If one baking powder label tells you to use one teaspoonful to a quart of flour and another tells you to use two teaspoonfuls to a quart of flour, you can be reasonably sure that the first is a stronger baking powder than the second.

Then too, why not ask your grocer what are the manufacturers' claims as to their available carbon dioxid content of the various brands of baking powder in his stock. If he doesn't know he can easily find out from the manufacturer. You may have heard a lot about this or that kind of baking powder leaving a chemical residue in the baked product, and it has been alleged that certain of these residues are deleterious to health. All baking powders leave a residue in the baked product and none are considered to be harmful in the amounts contained. Hence, when you see the statement on labels "Entirely free from certain named residues", such as (1) Rochelle Salts, (2) Phosphate, and (3) Alum. This will not mean very much nor will such statements as "Absolutely Pure", and "Absolute Purity Guaranteed". These latter, are just trade puffs.

Now, my friends learn to become intelligent label readers and therefore intelligent buyers. Do you want a copy of my read-the-label information on baking powder? Do you want to know what the little purple stamp on meat means and about meat grades? Do you want to know about vitamins? All of these and many other read-the-label subjects will be mailed to you on written request. Write to W.R.M. Wharton, United States Department of Agriculture, 201 Varick Street, New York City. Next week at this hour I shall tell you a story about putrid salmon and I will tell you more about reading labels.

